

were 7 associated procedures: 4 VSD closure, 2 balloon dilatation of aortic recoarctation and one main PA stenting. For PA band dilatation, 17 high pressure balloons were used and 11 low pressure balloons (mean balloon diameter: 12mm). Median RV/Ao pressure ratio dropped from 1 (± 0.3 ; 0.42-2.2) to 0.6 (± 0.3 ; 0.3-1.2) and median RV to PA gradient dropped from 61 mmHg (± 31 ; 42-160) to 19 mmHg (± 26 ; 12-83). Post intervention, mean saturation was 99% (93-100). When looking at outcome, 23 patients had no further interventions, 1 patient needed 2 dilatations of PA band and 4 patients had surgery (1 double switch, 1 vicious PA band removal, 1 in a context of severe RV dysfunction with tricuspid regurgitation and 1 for VSD closure and main PA stent removal). One patient died of RV failure after surgery and ventricular assistance.

Conclusion: Intervention on dilatable PA band is safe and carries good results with definitive treatment in the majority of cases.

0523

Feasibility and accuracy of left ventricular volumes and ejection fraction measured by different echocardiographic methods in congenital heart diseases involving the right ventricle

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Background: In CHD with RV volumetric or barometric overload, LV shape is altered. Little is known about the accuracy in this population of left ventricular (LV) volumes and ejection fraction (EF) measurement by standard echocardiographic methods using geometrical assumption: Teicholz, biplane Simpson and real-time 3D echocardiography (RT-3DE). Three-dimensional knowledge-based reconstruction (3D-KR) derived from two-dimensional echocardiographic imaging is a novel technique that has no geometrical assumption. The aim of our study is to assess the accuracy of several echocardiographic methods for measuring LV volumes and EF compared to cardiac magnetic resonance (CMR) measurements (gold standard) in this population.

Methods: 68 patients (mean age 13.3 \pm 4 years) with Congenital Heart Diseases (CHD) involving the RV and referred for cardiac MRI, were included. Among them, 13 patients had barometric overload, 37 patients had volumetric overload, and 18 patients had mixed overload. Echocardiographic images acquisition was performed using a standard ultrasound scanner linked to a Ventripoint Medical Systems unit. Analyzed parameters were end-diastolic volume (EDV), end-systolic volume (ESV), and LVEF measured by Teicholz, Simpson's modified formula and RT-3DE (GE Vingmed QVG Auto-4D). The method of disks was used for CMR LV volumes. Intra-observer, inter-observer, and inter-technique variability was assessed using intraclass correlation coefficient (CC), Pearson's CC, coefficients of variation, and Bland-Altman analysis.

Results: Feasibility was 98% for Teicholz Method and 3D-KR, 71% for Simpson's modified formula, and 73% for RT-3DE. We found globally poor correlation and agreement for volumes and EF between the different methods and MRI. The agreement was better when RV volumes were lower than 120ml/m² (and thus, LV shape was less altered).

Conclusions: LV volumes and EFs cannot be measured accurately by echocardiography in patients with dilated right ventricles.

0135

Increasing severity and complexity in adults with congenital heart disease undergoing heart transplantation (ACHD): temporal trends – a collaborative study on 97 patients

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Background: Residual abnormalities in cardiac structure and function predispose ACHD to late-onset heart failure and its complications. Therefore, heart transplantation (HT) in ACHD is increasingly used.



Methods: Out of a multi-institutional (3 centers) series of 2257 HT from 1988 to 2012, 100 (4.4%) were performed in 97 ACHD (65 men). They represented 45% of ACHD recipients in France at that time. We investigated the role of temporal trends on profile and outcomes of ACHD recipients. Trends were compared between 2 eras: era 1 (1988-2005, n=48) and era 2 (2006-2012, n=49).

Results: Mean age at the time of HT was 29.8 years. Forty-three patients (44%) had univentricular physiology (1V). Severity of disease was categorized in terms of initial diagnosis (according to classification of 32th ACC Bethesda Conference): 74.2% had a great complexity cardiopathy while 21.7% had a moderate severity disease and 4.1% a simple CHD. In-hospital mortality was high (34%).

Baseline characteristics did not differ significantly between the 2 eras. Era 2 recipients had less often right heart failure signs before HT. Their donors were older. They were more likely to be hospitalized, supported by inotropes and assist devices at the time of HT. The rate of 1V patients did not change over time: 50% in era 1 vs 39% in era 2 (p=0.27). The distribution of severity of disease changed significantly over time (p=0.048). The proportion of adult recipients with CHD of great complexity was higher in era 2 than era 1 (respectively 81.6% and 66.7%). In fact, transposition of the great arteries became the major provider of HT in adult in the recent era (30.6% in era 2 vs 8.3%, p=0.006), representing the only primary diagnosis whose proportion increased significantly. Multivariable factors associated with increased in-hospital mortality did not include transplant era.

Conclusion: Despite a worse baseline risk profile, and increasing complexity of ACHD recipients in recent years, mortality after HT has not increased.

0344

Why levosimendan should be considered for the treatment of viral myocarditis in children

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Background: Animal studies showed that levosimendan protects cardiomyocytes against apoptotic cell death in acute viral myocarditis. In addition to its inotropic properties, levosimendan seems to prevent the detrimental effects of oxidative stress and to limit cardiomyocyte loss.

Aim: To analyze the outcome of children who received levosimendan for acute or fulminant viral myocarditis.

Patients and methods: Retrospective single center study covering the period 2007- 2013. All children (<18 years) with viral myocarditis were treated, in association with epinephrine and/or milrinone, with a 24-hours infusion of levosimendan. Clinical, biological and echocardiographic evolutions were analyzed.

Results: Between 2007 and 2013, 18 successive children were treated, 9 for acute myocarditis and 9 for fulminant myocarditis (according to the international clinicopathological classification). Median age was 4 years (1.1-11) and median weight was 15kg (10-40). BNP level significantly decreased 48 hours after the beginning of the infusion (4599ng/L [2698-9266] vs 1928ng/L [848-4557], p=0.05). No dialysis was necessary. Among the fulminant myocarditis group, 1 patient (11%) required early mechanical circulatory support with a limitation of care due to severe neurologic complications. 13 patients (72%) recovered a LVEF >55% (100% for the acute myocarditis group). 1 patient had heart transplantation 18 months later.

Conclusion: In our experience, levosimendan was efficient for the inotropic support of acute and fulminant viral myocarditis. We believe that its cardioprotective effect enabled us to limit the use of mechanical assistance (only 11% of the fulminant forms) and allowed a recovering of the cardiac function for the majority of the patients. Although further clinical studies are needed to confirm these data, levosimendan should be systematically considered for the treatment of these critical patients.